Recommendations on the Decarbonisation of Energy in Aquaculture Vessels

AAC 2023-03

February 2023

The Aquaculture Advisory Council (AAC) gratefully acknowledges EU funding support

Index

I. Background

Climate change and its consequences are a critical threat to global civilisation and the environment, with possibly profound socioeconomic and geopolitical impacts in the near future. To overcome these challenges, the European Green Deal[1] aims to transform the EU into a modern, resource-efficient, and competitive economy. Achieving this aim requires ensuring no net emissions of greenhouse gases by 2050 and pursuing economic growth decoupled from resource use, while leaving no person and no place behind.

The European Climate Law[2] establishes a framework for the irreversible and gradual reduction of anthropogenic greenhouse gas emissions by sources and the enhancement of removals by sinks regulated in EU law. This regulation sets out a binding objective of climate neutrality in the EU by 2050, in pursuit of the long-term temperature goal set out in the Paris Agreement, and provides a framework for achieving progress in pursuit of the global adaptation goal. This regulation also sets out a binding EU target of net domestic reduction in greenhouse gas emissions for 2030.

Aquaculture is expected to play a central role in the blue economy. A sustainable blue economy[3] offers many solutions for achieving the European Green Deal objectives. To fully embed the blue economy into the Green Deal, the Commission has adopted a new approach for a sustainable blue economy in the EU that recognises its importance to climate change mitigation. Many current economic activities need to reduce their carbon footprints, while new carbon-neutral activities need to take centre stage. The blue economy can contribute to carbon neutrality by greening maritime transport, ports, fishing, and aquaculture and by developing offshore renewable energy.

Beyond the long-term efforts towards structural energy transition, the ongoing military conflict caused by Russia's invasion of Ukraine has greatly accelerated the need to reduce dependence on carbon energy in the maritime sector, including in aquaculture vessels.

II. Justifications

The EU aquaculture sector is expected to grow in the coming decades, as aimed for in the European Commission's "Strategic guidelines for a more sustainable and competitive EU aquaculture for the period 2021 to 2030"[4].

[1] European Commission. A European Green Deal: Striving to be the first climate-neutral continent https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en

[2] Regulation (EU) 2021/1119 of the European Parliament and of the Council of 30 June 2021 establishing the framework for achieving climate neutrality and amending Regulations (EC) No 401/2009 and (EU) 2018/1999 ('European Climate Law') https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32021R1119&from=EN

[3] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on a new approach for a sustainable blue economy in the EU. Transforming the EU's Blue Economy for a Sustainable Future. COM(2021) 240 final https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52021DC0240&from=EN

[4] Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. Strategic guidelines for a more sustainable and competitive EU aquaculture for the period 2021 to 2030. COM(2021) 236 final https://eur-lex.europa.eu/resource.html?uri=cellar:bab1f9a7-b30b-11eb-8aca-01aa75ed71a1.0022.02/DOC_1&format=PDF

Different types of vessels are used to support aquaculture operators. Most are used for small operations and the transportation of personnel. Others are more specific to stocking, harvesting, and the transportation of feed.

Currently, the fuel mix in the maritime sector, including aquaculture, relies entirely on fossil fuels. This can be explained by the characteristics of the vessels in use, insufficient incentives for operators to cut emissions, and the lack of mature, affordable, and globally utilisable technological alternatives to fossil fuels in the sector. The lack of information on future regulatory requirements and the long lifespan of vessels further complicate this situation.

In the case of finfish and shellfish aquaculture, even though boat use is less intensive than in the capture fisheries sector and the costs related to them are less relevant to the total cost of their products, the transition towards the use of alternative fuels is key to a competitive and sustainable future.

Aquaculture vessels are used for day-to-day farming operations, but these are characterised by journeys that are short in distance, regular in intensity, and involve daily returns to a home port. This makes its energy transition a more achievable objective in the short term than for capture fisheries or maritime transportation vessels. In this sense, aquaculture can lead the way for other sectors.

Initial technical proposals suggest that, in the short run, addressing emissions from aquaculture vessels will arrive through increased electrification and, in the mid-term, the application of hydrogen for their propulsion, besides the use of solar power for auxiliary power uses.

Aquaculture could invest in the construction of new vessels in accordance with the European Climate neutrality target[5] which requires the domestic reduction of net Greenhouse Gas(GHG) emissions (expressed as CO2 equivalent) at least 55% compared to 1990 levels by 2030, applying in each project a life cycle “cradle to gate” approach. Within this context, the overall construction of the vessel, apart from the engine and propulsion system, should be taken into consideration. In order to achieve the “Decarbonization target” and contribute to climate neutrality, it should be stated that achieving significant reductions in carbon emissions in aquaculture vessels requires the construction of carbon neutral vessels and the use of cleaner types of energy, such as renewable and low-carbon fuels, but also less energy by increasing energy efficiency.

III. Recommendations

The Aquaculture Advisory Council advises the European Commission and the Member States to take the following actions in the short and medium terms for the decarbonisation of energy in aquaculture vessels:

a) The European Commission and Member States fund research and technological development to deal with the specific requirements of the energy transition of aquaculture vessels. Such requirements should be understood as different from those of capture fisheries vessels. This matter would require close coordination between DG MARE, DG RTD, and the European Climate, Infrastructure and Environment Executive Agency (CINEA).

b) DG MARE makes use of the Aquaculture Assistance Mechanism to spot and share current experiences in renewable and low-carbon fuel in aquaculture vessels on which common European development could be built. This outlooking exercise could be extended to other countries, such as Norway, where examples of full-electric aquaculture vessels are in

[5] 2030 Climate Target Plan. https://climate.ec.europa.eu/eu-action/european-green-deal/2030-climate-target-plan_en

development.

c) Member States find ways to make use of the creativity and proactivity of aquaculture farmers to accelerate the energy transition in aquaculture vessels. This could be promoted through Fisheries Local Action Groups (FLAGs) or Producer Organisations (POs).

d) Member States provide maximum financial support through the European Maritime, Fisheries and Aquaculture Fund (EMFAF) to aquaculture farmers engaging in the decarbonisation of energy in aquaculture vessels, including for both the purchasing of vessels built with a carbon neutral balance and for decarbonised propulsion systems

e) The decarbonisation of energy in aquaculture vessels would benefit from the establishment of an EU monitoring system to measure advancements in this field and encourage progress. This will be essential to achieving the 2030 and 2050 emission targets.

f) Any policy making for the decarbonisation of energy in aquaculture vessels should be coherent with the reality of this primary production sector, mainly comprised of micro and small undertakings. Changes in the legal framework should offer predictability to operators and investors.

g) The transition should mean the acquisition of new carbon neutral built aquaculture vessels, the acquisition of low-carbon powered aquaculture vessels and the adaptation of existing vessels by the replacement of combustion engines and the installation of low-carbon auxiliary power sources.

h) The decarbonisation of energy in aquaculture vessels would also benefit from efforts to increase their energy efficiency.

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